# THE OPERATIVE TECHNIC OF CARCINOMA OF THE PENIS.

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DURING the past fourteen years I have employed the following method of operating for removal of penile carcinoma. In November, 1905, in describing it to the Glasgow Pathological and Clinical Society (vide *Glasgow Medical Journal,* May, 1906), I made reference to the results in cases treated which had passed the three year period, and to two cases which had not. Of these two cases, one (patient sent by Dr. John MacIntyre), in which there was extensive involvement of the deep inguinal glands, had fatal recurrence in the region of these glands within a year; the other (sent by Dr. Jas. Stevenson), in which the disease was in less advanced stage, is free from recurrence three and a half years after operation. During the past three years I have not seen a case of penile carcinoma, but within the past three months have operated on two in the Western Infirmary of Glasgow. The same method has been employed as in former cases. Its object is the removal, *en masse,* of the primary carcinoma, the fat and glands of the groins, and the lymphatic vessels intervening between primary growth and area of probable or actual secondary extension. This is, of course, the object of all modern operations for carcinoma wherever occurring.

In the penis, carcinoma is practically always an epithelioma originating on the surface of glans or prepuce, usually in the region of the corona.

The lymphatics of the anterior half of the penis pass almost wholly to the dorsum, the main channels passing back on either side of the dorsal vein to the oblique set of superficial glands of the groin, in the first instance, secondarily thence to the deep inguinal glands lying along the external inguinal vessels on the brim of the pelvis. Few, if any, of the lymphatics from the anterior half of the penis pass to the deep lymphatic vessels of the root of the penis, which channels pass under the pubic arch to the intrapelvic glands.

Epithelioma of the penis (prepuce and glans) like chancre in the same region, primarily extends along the dorsal lymphatic channels on either side of the dorsal blood-vessels and affects the glands of the groin and the deep inguinal glands along the brim of the pelvis. Only late in the progress of the disease does the growth infiltrate the corpora cavernosa and the posterior portion of the corpus spongiosum, and thus reach the lymphatics which are under the pubic arch, and, through these, the intrapelvic glands. When such infiltration of the proximal portion of the penis and invasion of the intrapelvic glands have occurred the case is inoperable in the vast majority of instances. For such advanced cases various extensive operations, including the bisection of the scrotum and the detaching of the crura penis from the pubic arch, have been introduced, and may possibly be justifiable in a few cases.

The usual, operable, case of penile carcinoma presents a growth in the anterior fourth or third of the penis, with possible extension along the dorsal lymphatics and involvement of the superficial glands of the groin, and, through them, the deep inguinal glands along the external iliac vessels. There is no infiltration of the posterior part of the penis, nor are the lymphatics under the pubic arch infected. Operative measures should aim at the removal of the anterior two-thirds or three-fourths of the penis, plus the dorsal blood- and lymphatic-vessels (with their surrounding connective tissue) back to the pubes, and *plus,* further, the fat (and contained lymphatic-glands and channels) of both groins. All the structures mentioned should be removed in one mass. In cases in which glandular involvement has extended under Poupart's ligament from the superficial inguinal to the deep inguinal glands, these latter must also be removed.

The entire operation is carried out through a Y-shaped incision,—strictly a Y-shaped incision. The steps in its execution are as follows:

1. Having passed a sound, make the incision indicated in Fig. 1. The "arms" of the Y extend along the folds of the groin—or along a line more or less parallel with that fold but somewhat above it—from a point at the root of the penis on the pubic crest outwards towards the superior iliac spine. The "leg" of the Y, carried along the dorsum of the proximal fourth of the penis, terminates in the loop which constitutes the "foot" of the Y, which loop obliquely encircles the penis. That loop is skin-deep only, the "leg" is carried more deeply, and the "arms" are ultimately deep wounds (see Fig. 1).

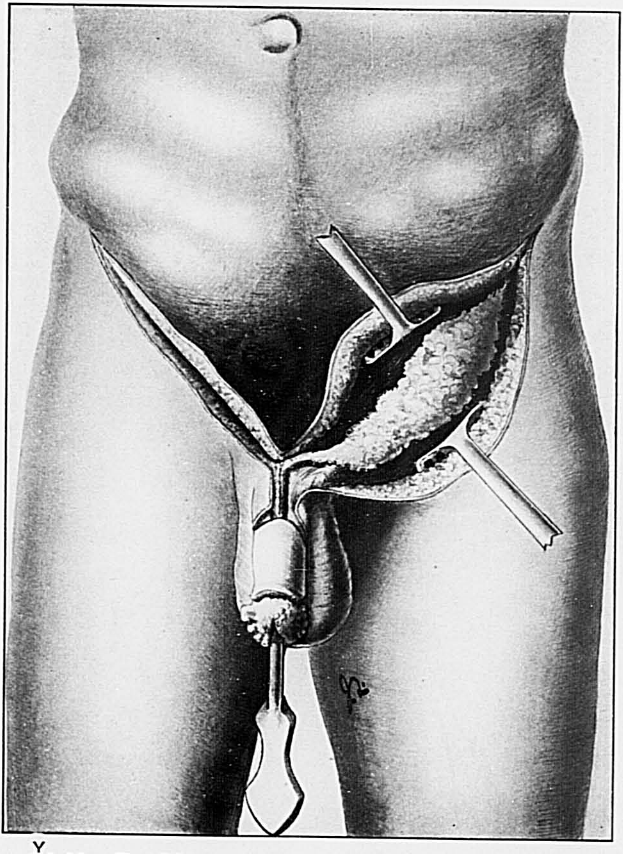
2. Dissect out all fat and contained lymphatic channels and glands, *en masse,* from both groins. Hemorrhage may be largely avoided by reflecting the lower skin flaps first, towards the thighs, thus securing at once the superficial epigastric, superficial circumflex and external pudic arteries and veins where they perforate the deep fascia. These vessels once secured, the upper flaps are reflected and the whole fat of the groins rapidly raised *en masse* from the deep fascia lata of the groins and the aponeuroses of the external oblique muscles.

In cases in which the step is indicated, next open the fascia lata just below Poupart's ligament, and, having exposed and opened the femoral sheath, and raised and repressed the peritoneum, remove the fat and glands along the external iliac vessels, pushing aside or tying the deep epigastric vessels.

3. Dissect out the dorsal blood-vessels and lymphatic channels of the penis (with all surrounding fascia) leaving the sheaths of the corpora cavernosa bare on their dorsal aspect. Tie the dorsal arteries and vein close to the pubes at the suspensory ligament of the penis. The fat of the groins, and the fascia and vessels of the dorsum of the penis form one continuous mass containing the unbroken lymphatic channels.

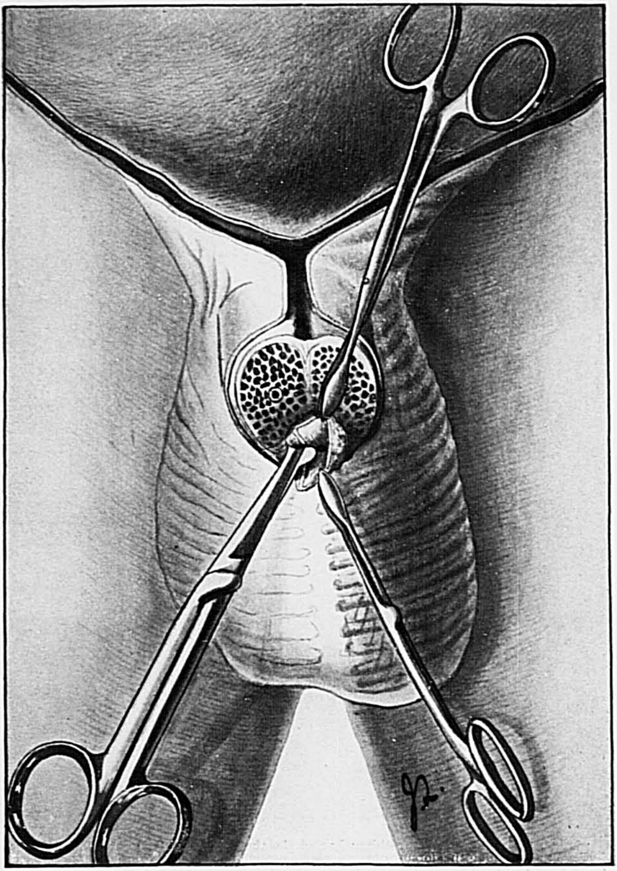
4. At the line of the loop-incision round the penis, pass the knife between the corpus spongiosum and the two corpora cavernosa, and divide the latter.

FIG. 1.



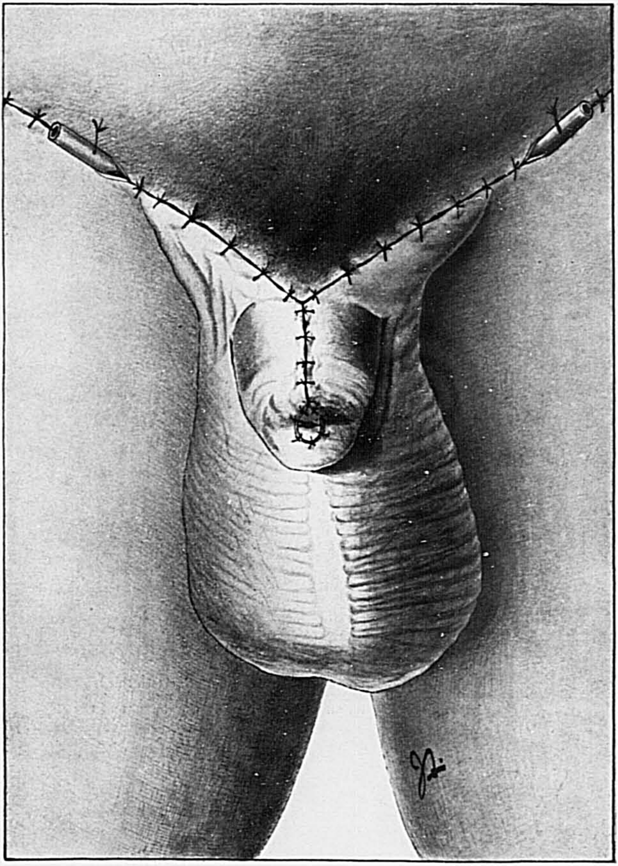
$\overset{Y}{O}$ incision. The "O" loop obliquely encircles the penis, and is merely skin-deep. The "leg" extends along the dorsum of the penis. Through it the dorsal lymphatics are dissected out *en masse* with the dorsal blood-vessels and surrounding areolar tissue. The "arms" extend along the folds of the groins. They constitute deep wounds, through which are removed all the superfical inguinal glands and surrounding fat, and through which, also, are removed any deep inguinal glands found on exploration of the retroperitoneal fat around the iliac blood-vessels on the brim of the pelvis.

FIG. 2.



Penis removed. The corpus spongiosum is left longer than the corpora cavernosa, and is cut obliquely to leave the lower lip longer than the upper. The urethra and surrounding corpus spongiosum are shown in process of being split transversely.

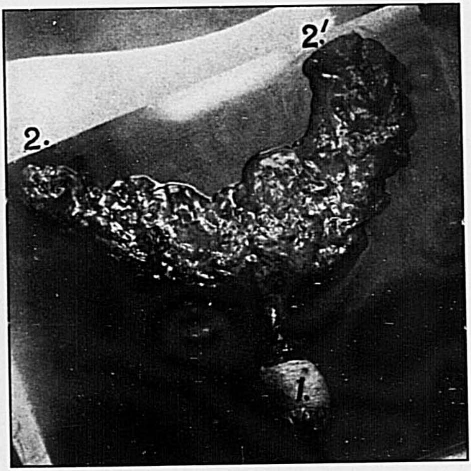
FIG. 3.



Wound sutured, showing the long spout-like inferior lip of the urethral orifice, and the drainage tubes necessary to provide for the lymphorrhœa which follows the extensive removal of the lymphatics of the groin.

NOTE.—In practice the portion of the penis left is shorter than is indicated in the illustration.

FIG. 4.



Photograph showing parts removed: 1, anterior two-thirds of penis; 2 and 2′, fat and contained glands of groins united to penis by the vessels, lymphatics, and fibrous tissue of the dorsum of the penis.

5. Withdraw the bougie, and divide the corpus spongiosum. This should be done at a point somewhat anterior to the line of division of the corpora cavernosa, thus leaving the spongy body and divided urethra rather longer than the cavernous bodies. Further, it should be done obliquely, to leave the inferior lip of the divided urethra longer than the superior (Fig. 2).

6. Split the urethra and spongy body transversely to the extent of one-third of an inch (Fig. 2).

7. Secure the arteries of the corpora cavernosa, and the arteries of the corpus spongiosum. No tourniquet is possible in the operation, and these vessels will have been temporarily clamped by pressure forceps on division of the penis. In the application of the forceps time and blood are saved by clamping each vessel *en masse* with some of the surrounding cavernous tissue. Similarly the ligature should include all that is held in the forceps. The penile tissue is occasionally so friable that attempts to isolate these vessels fail. Where hemorrhage proves difficult to control by ligature (a rare event) it may be checked by encircling the cavernous body by a suture having a "bite" in the tough penile sheath. Preliminary ligature of the internal pudics is unnecessary.

8. Close the wound by suture as indicated in Fig. 3. The oblique direction of the skin incision encircling the penis, the fact that the spongy body is cut longer than the cavernous bodies, and the oblique division of the urethra itself all combine, when the wound is sutured, to the shaping of a meatal orifice with a "spout-like" inferior lip, a matter of prime importance in the subsequent comfort of the patient in micturition.

9. Drainage is necessary (Fig. 3). One effect of the wholesale clearing of the fat and lymphatics from the groin is a lymphorrhœa through the groin-wounds. This is usually sufficient to "bag" the wounds if undrained, and may be excessive, necessitating change of dressings several times daily. Such lymphorrhœa is unknown in the axilla after operation for mammary carcinoma.

10. A soft catheter is fixed in the urethra by sutures for several days—or regular catheterization is carried out for the same period. Thereafter the patient is permitted to pass urine.

11. The method of dressing is of somewhat special importance. The wound is dressed in two parts: (*a*) the groins—the very free clearing out of the fat from the groins leaves the skin extensively undermined. As the patient lies in bed he naturally partly flexes his thighs. This brings the loose skin away from the subjacent parts, suspending it so far in mid air. To keep it in contact with the deeper tissues it is necessary to put in each groin a considerable mass of dressing. These masses are secured by a double spica bandage. (*b*) The penile stump is merely covered with a small guard of gauze, wrung from boracic or other bland fluid, and frequently renewed. This is secured by a couple of catch pins to the spica bandage.